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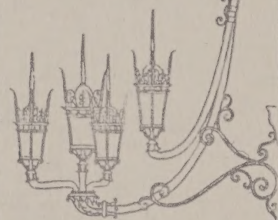
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## The Cost of Doing Business in Boston

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## Executive Summary

Several recent articles on economic trends in Massachusetts have suggested that a "high cost of doing business" in the state and the Boston area is an impediment to economic growth. Data from recent years do not support that assumption. Further, in the most vibrant sectors of the national economy, the costs of land, labor, and capital are becoming less important in the location of businesses. For high technology manufacturers and other innovative businesses, location factors that are becoming more important are quality of labor, availability of workers with specialized skills, and proximity to concentrations of similar businesses, business services, financial services, universities, and large hospitals.

Trends in wages, the largest component of business costs, indicate that:

- \* over the last 40 years, average hourly earnings in manufacturing in Massachusetts and New England were below the national average until 1988;

- \* during the 1960s, average hourly wages of production workers in New England were 13 percent above the average in the South, but the differential fell to 4 percent by 1977 and only 2 percent by 1982;

- \* The strong economy in the Boston area during the mid-1980s brought gains of 5 to 6 percent per year in wages and salaries in major occupational groups.

- \* Even near the end of its strong growth period, the Boston area had low wages for many occupations relative to other growing areas.

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## Doing Business in Boston

### The Importance of Business Costs

In economic theory, relative costs of labor, land, and capital are key determinants of when and where businesses locate and expand operations. For businesses that mass produce consumer goods such as shoes, clothing, tires, or toothpicks, differential labor costs have influenced the location of production facilities. New England lost most of its textile mills to areas in the southern United States or foreign countries where comparative wages were much lower.

Today, the determinants of location and growth are not as closely related to costs of doing business and labor costs in particular. Economists such as James Howell and Paul Osterman have emphasized the importance of innovation in today's high technology manufacturing and information services. More important than relative wages of an area is the availability of talented people. Creative managers and technicians can lead a business to new products and new market niches. Innovative businesses are likely to thrive where they can tap the talent and knowledge of technical universities and their recent graduates, and major hospitals and their research laboratories. Firms that employ skilled workers and incorporate the latest information technology are likely to improve efficiency and productivity.

The choice of location for a business may be related to costs factors, locations of markets for its goods and services, and potential for growth. Beyond the balance sheets, corporate decision makers assess locations with their personal preferences in mind. The quality of life of an area must be attractive to executives and to the types of workers they need to attract and keep.



How would Boston look to the executives of innovative businesses? For the balance sheet, Boston's average wage levels have been catching up with those of some other high-growth metropolitan areas, but are still below the levels of many areas. Boston is still located near substantial markets for manufactured goods and for services. For innovative businesses, the Boston area has a foundation of talent in its universities, hospitals, and high technology companies. Boston has a well-trained, diverse labor force that enjoyed substantial increases in personal income in the 1980s. The cost of living is relatively high, but pay levels are on a par with other growing areas. Perhaps more importantly, the Boston area has or is proximate to a wide range of high quality recreation, entertainment, and cultural amenities.

What role have labor costs played in the growth of the regional economy over the last few decades when basic manufacturing accounted for a larger share of employment and income? The rest of this paper summarizes information on wage trends in New England and the Boston area, and provides a context for assessing Boston as a base for location of mature as well as growing, innovative industries.





## Comparative Average Earnings

Average hourly earnings in manufacturing in Massachusetts and New England were well below national averages from 1950 until 1988. See Table 1. From 1982 to 1987, the state and region did raise their relative standings, increasing from about 10 percent below national averages to about 2 percent below. In 1989, average hourly earnings in Massachusetts were 3.8 percent above the national average.

During the 1960s, average hourly wages for production workers in the Boston area, the state, and the region were 13 to 15 percent higher than averages in the South. By 1977, the South's average wages were converging towards wages in New England, as the differential fell to 4 percent. In 1982, the South's wages were only 2 percent below those in New England and 3 percent below those in the Boston area. See Table 2.

A recent article, Fortune (October 22, 1990), published comparative salary information for 50 selected metropolitan areas in 1987. Among those 50 areas, Boston ranked 17th in average annual salary in manufacturing, below areas such as Seattle, San Francisco, Minneapolis/St. Paul, and Denver, and just above Oklahoma City, Washington, D.C., Louisville, Columbus, and Dallas/Forth Worth. See Table 3.

The strong economy in the Boston area during the mid-1980s brought gains of 5 to 6 percent per year in wages and salaries in major occupational groups. Yet, data for 1982 through 1989 indicate that the change in earnings from the previous year exceeded the inflation rate by more than one percentage point only in 1983, 1984 and 1986. See Tables 4 and 5.

For all industries combined, average annual pay increases between 1980 and 1984 in the Boston metropolitan area rivaled those in the fastest-growing metro areas in the nation. Among the 35 largest metropolitan areas, the average annual pay level in Boston rose from 23rd in 1980 to 15th in 1984. Boston started the decade at a rather low level. With the exceptions of





Memphis and Buffalo, all of the stagnant areas (employment growth less than 1.0 percent per year 1978-1984) had higher average pay levels than Boston in 1980. Of the thirteen strong growth areas (employment growth greater than 2.5 percent per year from 1978-1984), only six had lower average pay levels than Boston in 1980. See Table 6.

In the most recent period, the association between average pay levels and employment growth does not appear to be as strong. Between 1984 and 1988, Boston and New York had the highest growth rates in average annual pay, both 32.3 percent, among the 35 largest metro areas. Boston rose again in rank from 15th to 8th. The areas with higher average annual pay were New York, San Jose, San Francisco, Newark, Detroit, Washington, D.C., and Los Angeles. See Table 7. Despite the rapid rise in labor costs, the Boston area continued to thrive, as did San Jose, San Francisco, New York, Los Angeles, and Washington, D.C.

Part of the explanation for Boston may be relative wage differentials in key occupations in growing business types. Even during the boom, Boston had relatively low wages and salaries for many occupations compared to other growing areas. For example, in 1987, the average weekly earnings for secretaries was higher in San Francisco, Anaheim, Baltimore, and Chicago. Average earnings for computer programmers were higher in San Francisco, Denver, and Washington, D.C. See Table 8.

The Fortune article cited above also provided comparative salary data for jobs in the finance, insurance, and real estate industries in 1987. The Boston area ranked 5th among the 50 metropolitan areas behind New York City, San Francisco, Chicago, and Houston, and just above Los Angeles, Atlanta, Denver, San Diego, and Dallas/Fort Worth. See Table 9.



## **Employment Cost Index**

The employment cost index of the U.S. Bureau of Labor Statistics shows that wages, salaries, and benefits in the Northeast increased 62 percent between June 1981 and March 1990. The national average increase in compensation for all private workers was 52 percent for the same period. See Table 10.

The current regional economic slowdown is associated with slower labor cost growth. In the second quarter of 1990, the South, West and Midwest showed faster growth in labor costs than Northeast. The employment cost index for the Northeast increased 0.9 percent compared to the national average of 1.3 percent. See Table 11, first and second columns. For the 12 months ending in June 1990, the rate of total compensation change in the Northeast was 5.3, just above the national average of 5.2. For the 12 months ending in June 1989, the Northeast had led the other regions by a substantial margin. See Table 11, third and fourth columns.

## **Regional Trends**

Regional differences in the cost of doing business have played a role in regional business trends, particularly in manufacturing where the cost of production by region has been related to shifts in the location of production. A study by Benjamin H. Stevens, "Regional Cost Equalization and the Potential for Manufacturing Recovery in the Industrial North (1982)," explored changes in regional production costs. Stevens attributed the shift in manufacturing employment in the 1970s to "basic location factors that influence the location decisions of industrialists. The South has had as its advantages both lower costs for labor and energy, lower tax costs, a more amenable climate," and growing southern markets as part of a cumulative growth process. Then, Stevens noted that southern wages had been rising toward the national





average and toward the slower growing northern wages. With some time lag, location decisions would become less favorable to southern areas, and more directed toward northern locations.

While Stevens found a tendency toward interregional cost convergence in manufacturing, numerous anomalies included the growth of instruments in Massachusetts (including Polaroid photographic equipment) despite above-average relative production costs. Polaroid was an early high technology manufacturer that thrived in the Boston area for reasons not related to average wages.

In the conclusion to the 1982 study, Stevens suggested that New England's manufacturing decline would abate and that, with its declining relative production costs, the region's manufacturing would revive in the 1980s.

In the Boston area in the 1980s, employment growth was apparently not deterred by substantial wage growth. This would seem to contradict Stevens' findings, but several factors may explain the trends in Boston. First, the Boston economy is diversified with only moderate reliance on the type of manufacturing that would be particularly sensitive to wage costs. Second, for many of the growing business types in the Boston area, labor costs are diminishing in importance. Access to specialized, high quality workers, and proximity to specialized product and service markets may outweigh relative labor costs for firms in high technology pursuits. For example, a firm that seeks entry level workers who have high technical skills in biology would locate in the vicinity of a technical university. A medical testing facility would be proximate to hospitals and clinics for patient referrals. A firm that prints regional business journals would locate close to its news sources, advertising agents and readers. A graphics reproduction business would locate in the midst of architects and graphic artists. In these examples, relative wages in smaller economic centers and places far from particular markets would not be relevant in the business firm's location decisions.





**Table 1. Pay Relatives for Average Hourly Earnings in Manufacturing,  
New England States, Selected Years 1950-1989.**

(U.S. Average Hourly Earnings in Manufacturing = 100)

State	1950	1960	1970	1980	1982	1987	1988	1989
-----	----	----	----	----	----	----	----	----
Connecticut	99.3	102.7	102.4	97.4	96.9	105.5	105.9	107.0
Maine	82.6	78.3	80.9	82.5	85.0	88.5	91.5	94.7
Massachusetts	95.8	92.5	96.4	89.6	89.3	98.6	102.2	103.8
New Hampshire	84.0	78.3	83.9	80.7	81.7	93.7	97.9	98.9
Rhode Island	88.9	83.2	85.1	76.9	77.9	82.7	84.9	86.6
Vermont	84.0	81.9	87.5	84.5	86.6	92.0	93.0	94.9
 New England	 94.1	 92.4	 95.1	 89.4	 89.6	 97.8	 100.3	 101.9

Source: U.S. Department of Labor, Bureau of Labor Statistics  
News Release, 1990.

**Table 2. Index of Average Hourly Wages of Production Workers.**

Index: United States = 1.00

Region	1963	1967	1972	1977	1982
-----	----	----	----	----	----
United States	1.00	1.00	1.00	1.00	1.00
 Northeast	 0.99	 0.99	 0.99	 0.97	 0.96
Midwest	1.11	1.11	1.13	1.15	1.15
South	0.82	0.83	0.83	0.85	0.88
West	1.12	1.11	1.08	1.03	1.04
 New England	 0.93	 0.94	 0.92	 0.89	 0.90
Massachusetts	0.93	0.94	0.94	0.90	0.90
Boston Metro	0.95	0.96	0.98	0.92	0.91
 Average Wage Ratio					
N.England to South	1.13	1.13	1.11	1.04	1.02

Source: U.S. Department of Commerce, Bureau of the Census,  
City and County Data Book, 1967-1988.



Table 3. Average Annual Salaries in Selected  
Metropolitan Areas, 1987.  
in Descending Order of Manufacturing Salaries.

Metropolitan Area	Average Annual Salaries 1987	
	Manufacturing	Finance/Insurance /Real Estate
Detroit	33,935	24,066
Seattle	31,605	24,975
West Palm Beach	31,346	24,792
Rochester	31,071	22,886
Houston	30,795	28,870
Cincinnati	29,857	22,122
Minneapolis/St. Paul	29,823	25,449
Denver	29,660	27,112
St. Louis	29,459	23,366
Pittsburgh	29,399	23,475
Richmond	29,356	24,285
San Francisco	29,124	31,810
Dayton	29,022	20,020
Indianapolis	28,757	22,940
Hartford	28,719	25,552
Cleveland	28,641	22,923
BOSTON	28,176	28,589
Oklahoma City	28,008	21,142
Washington, D.C.	27,921	24,888
Louisville	27,519	21,878
Columbus	27,509	21,454
Dallas/Fort Worth	27,450	26,237
Milwaukee	27,390	24,139
Baltimore	27,369	25,381
Chicago	27,204	30,229
San Diego	26,954	26,475
Philadelphia	26,885	25,870
New York City	26,817	41,420
Buffalo	26,814	23,209
Kansas City	26,766	25,210
New Orleans	26,662	22,238
Phoenix	26,475	24,403
Los Angeles	26,445	27,968
Austin	25,884	20,585
Atlanta	25,795	27,242
Sacramento	25,513	23,867
Portland	25,433	22,044
Albany	25,219	21,284
Orlando	24,913	22,509
Norfolk	24,318	19,514
Salt Lake City	23,340	19,016
Nashville	23,190	23,131
Jacksonville	22,083	24,647
Tampa	21,930	22,934
Memphis	21,766	25,966
Birmingham	21,719	22,437
Greensboro	21,293	20,203
Charlotte	21,177	24,673
San Antonio	20,298	22,771
Miami	17,827	24,278

Source: "Fortune's Top Ten," Fortune, October 22, 1990.





Table 4. Percent Changes in Earnings, Boston Area, 1981-1989.

Occupational Group	Change in Earnings in Percent						
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Office Clerical	6.4	5.9	5.5	5.2	6.0	5.6	5.4
Electronic Data Processing	6.1	6.6	5.0	6.3	8.0	5.2	5.0
Skilled Maintenance Trades	5.9	6.0	4.2	4.1	4.7	4.4	2.8
Unskilled Plant	7.7	6.8	5.5	4.2	4.5	6.1	4.8

Source: U.S. Department of Labor, Bureau of Labor Statistics News Release, 1990.

Table 5. Percent Changes in Earnings and Consumer Prices, Boston Area, 1981-89.

Occupational Group	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Consumer Price Index/1	2.4	5.5	4.6	1.8	6.2	5.5	5.2
"Real" Earnings/2							
Office Clerical	4.1	0.4	0.9	3.4	-0.2	0.1	0.2
Electronic Data Processing	3.8	1.1	0.4	4.5	1.8	-0.3	-0.2
Skilled Maintenance Trades	3.6	0.5	-0.4	2.3	-1.5	-1.1	-2.4
Unskilled Plant	5.4	1.3	0.9	2.4	-1.7	0.6	-0.4

/1 Percent Change in the Boston Consumer Price Index for Urban Wage and Clerical Workers, September to September.

/2 Earnings from Table 1 adjusted for change in consumer price index.

Source: U.S. Department of Labor, Bureau of Labor Statistics News Release, 1990.



Table 6. Average Annual Pay of Employees Covered by Unemployment Insurance Programs in Selected Metropolitan Areas, 1980 and 1984.

Metropolitan Area	Annual Pay in 1980 (average in dollars)	Annual Pay in 1984	Change in Pay 1980 to 1984 (percent)	Ratio of Pay to Pay in All Metro Areas	
				1980	1984
<b>Eastern Mass:</b>					
Boston	14,469	19,450	34.4	0.97	1.02
New Bedford-Fall River	11,354	14,778	30.2	0.76	0.78
<b>Strong Growth Areas:</b>					
Atlanta	14,645	19,118	30.5	0.98	1.00
Dallas	15,194	20,976	38.1	1.02	1.10
Denver	15,543	20,655	32.9	1.04	1.09
Houston	17,462	22,204	27.2	1.17	1.17
Jacksonville	14,289	16,855	18.0	0.96	0.89
Nashville	12,957	16,958	30.9	0.87	0.89
Oklahoma City	14,260	18,350	28.7	0.96	0.96
Phoenix	14,149	17,949	26.9	0.95	0.94
San Antonio	12,672	16,554	30.6	0.85	0.87
San Diego	14,121	18,133	28.4	0.95	0.95
San Jose	16,845	23,703	40.7	1.13	1.25
Seattle	16,992	20,189	18.8	1.14	1.06
Washington, D.C.	16,602	21,693	30.7	1.12	1.14
<b>Slow Growth Areas:</b>					
Baltimore	13,993	18,084	29.2	0.94	0.95
Columbus	14,198	18,311	29.0	0.95	0.96
El Paso	12,525	14,761	17.9	0.84	0.78
Kansas City	14,891	18,645	25.2	1.00	0.98
Los Angeles	16,305	21,188	29.9	1.10	1.11
Minneapolis	14,993	19,645	31.0	1.01	1.03
New Orleans	14,397	18,506	28.5	0.97	0.97
New York	16,948	23,111	36.4	1.14	1.21
Philadelphia	14,996	19,118	27.5	1.01	1.00
San Francisco	16,672	22,810	36.8	1.12	1.20
St. Louis	15,029	19,433	29.3	1.01	1.02





Table 6. (continued)

<b>Stagnant Areas:</b>					
Buffalo	14,238	17,425	22.4	0.96	0.92
Chicago	16,429	21,193	29.0	1.10	1.11
Cincinnati	15,115	18,955	25.4	1.02	1.00
Cleveland	15,904	19,951	25.4	1.07	1.05
Detroit	18,317	22,500	22.8	1.23	1.18
Indianapolis	14,859	18,661	25.6	1.00	0.98
Memphis	13,541	17,481	29.1	0.91	0.92
Milwaukee	15,207	18,900	24.3	1.02	0.99
Newark	16,419	21,475	30.8	1.10	1.13
Pittsburgh	15,802	18,994	20.2	1.06	1.00
All Metropolitan Areas	14,886	19,028	27.8	1.00	1.00

**Notes:**

Metro areas are grouped according to growth rates in employment as measured by the U.S. Department of Commerce, Bureau of Economic Analysis as follows: (See: Francoise Carre and Jeffrey Brown, "The Economies of Boston and 34 Other Large Cities: Comparative Analysis," Boston Redevelopment Authority, 1987.)

Strong growth = 2.5 percent or greater average annual growth in nonfarm employment 1978-1984.

Slow growth = 1.0 to 2.4 percent growth.

Stagnant Areas = less than 1.0 percent growth.

Source: U.S. Department of Labor, Bureau of Labor Statistics,  
News Releases: Annual Pay Levels in Metropolitan  
Areas, 1981, 1985.



Table 7. Average Annual Pay of Employees Covered by Unemployment Insurance Programs in Selected Metropolitan Areas, 1984 and 1988.

Metropolitan Area	Annual Pay in 1984 (average in dollars)	Annual Pay in 1988	Change in Pay 1984 to 1988 (percent)	Ratio of Pay to Pay in All Metro Areas	
				1984	1988
<b>Boston</b>	19,450	25,731	32.3	1.02	1.13
<b>New Bedford-Fall River</b>	14,778	19,041	28.8	0.78	0.83
<b>Strong Growth Metro Areas</b>					
Atlanta	19,118	23,440	22.6	1.00	1.03
Dallas	20,976	24,463	16.6	1.10	1.07
Denver	20,655	23,641	14.5	1.09	1.04
Houston	22,204	24,410	9.9	1.17	1.07
Jacksonville	16,855	19,986	18.6	0.89	0.88
Nashville	16,958	20,469	20.7	0.89	0.90
Oklahoma City	18,350	19,998	9.0	0.96	0.88
Phoenix	17,949	21,438	19.4	0.94	0.94
San Antonio	16,554	19,325	16.7	0.87	0.85
San Diego	18,133	22,183	22.3	0.95	0.97
San Jose	23,703	29,521	24.5	1.25	1.29
Seattle	20,189	23,436	16.1	1.06	1.03
Washington, D.C.	21,693	26,779	23.4	1.14	1.17
<b>Slow growth areas</b>					
Baltimore	18,084	22,242	23.0	0.95	0.97
Columbus	18,311	21,301	16.3	0.96	0.93
El Paso	14,761	16,731	13.3	0.78	0.73
Kansas City	18,645	21,598	15.8	0.98	0.95
Los Angeles	21,188	26,011	22.8	1.11	1.14
Minneapolis	19,645	23,618	20.2	1.03	1.03
New Orleans	18,506	20,389	10.2	0.97	0.89
New York	23,111	30,578	32.3	1.21	1.34
Philadelphia	19,118	23,895	25.0	1.00	1.05
San Francisco	22,810	27,859	22.1	1.20	1.22
St. Louis	19,433	22,735	17.0	1.02	1.00





Table 7. (continued)

<b>Stagnant Areas</b>					
Buffalo	17,425	20,319	16.6	0.92	0.89
Chicago	21,193	25,688	21.2	1.11	1.13
Cincinnati	18,955	21,976	15.9	1.00	0.96
Cleveland	19,951	23,051	15.5	1.05	1.01
Detroit	22,500	26,602	18.2	1.18	1.17
Indianapolis	18,661	21,877	17.2	0.98	0.96
Memphis	17,481	20,371	16.5	0.92	0.89
Milwaukee	18,900	21,800	15.3	0.99	0.95
Newark	21,475	27,648	28.7	1.13	1.21
Pittsburgh	18,994	21,945	15.5	1.00	0.96
All Metropolitan Areas	19,028	22,833	20.0	1.00	1.00

Notes: (See Table 6).

Strong growth = 2.5 percent or greater average annual growth in nonfarm employment 1978-1984.

Slow growth = 1.0 to 2.4 percent growth.

Stagnant Areas = less than 1.0 percent growth.

Source: U.S. Department of Labor, Bureau of Labor Statistics,  
News Releases: Annual Pay Levels in Metropolitan  
Areas, 1985, 1989.



Table 8A. Earnings for Selected Occupations, 1987, Boston,  
San Francisco, Denver, and Washington, D.C.

Occupation	San Francisco		Washington D.C.	
Office Occupations:	Average Weekly Earnings			
Secretaries	403.50	456.50	403.00	402.50
Word Processors	350.50	402.00	331.50	338.00
Key Entry Operators	304.00	359.00	308.00	279.50
Accounting Clerks	333.00	412.00	320.50	312.50
Payroll Clerks	350.50	422.50	350.00	349.00
File Clerks	241.50	264.50	239.00	282.50
Messengers	245.00	293.50	256.00	263.00
Order Clerks	276.50	359.50	331.00	271.50
Receptionists	306.50	311.50	227.50	258.00
Switchboard Operators	291.00	316.00	273.00	286.50
Professional and Technical:	Average Weekly Earnings			
Computer Systems Analysts	712.50	752.00	707.50	714.00
Computer Programmers	555.50	682.00	586.00	561.50
Computer Operators	393.50	431.00	422.00	386.50
Drafters	502.00	575.00	454.00	393.50
Electronics Technicians	466.50	628.50	517.00	538.50
Maintenance, Toolroom, Powerplant, Material Movement, and Custodial:	Average Hourly Earnings			
Maintenance Carpenters	13.09	18.04	14.01	13.06
Maintenance Electricians	14.40	21.72	15.14	11.84
Maintenance Painters	11.79	16.88	--	11.82
Maintenance Mechanics	11.97	17.78	13.17	13.84
Motor Vehicle Mechanics	14.55	17.62	13.23	13.71
Maintenance Workers(general)	8.96	8.41	8.94	18.37
Stationary Engineers	14.40	18.45	14.42	13.02
Truckdrivers	12.87	12.09	10.75	10.44
Shippers	8.34	13.11	7.26	7.81
Receivers	10.01	10.38	7.30	8.44
Warehousemen	10.83	13.18	10.32	8.07
Material Handling Laborers	9.46	11.91	9.43	7.03
Forklift Operators	11.75	11.78	11.44	11.53
Guards	6.02	6.29	5.21	6.45
Janitors, Porters, Cleaners	6.41	9.01	4.96	4.88

Source: U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Earnings and Wage Trends in Metropolitan Areas, 1987," Summary 87-7 and 88-1. The surveys were conducted in the San Francisco PMSA in March 1987, and in the Boston PMSA in August 1987.





Table 8B. Ratio of Earnings for Selected Occupations, 1987, to Earnings  
in Boston: San Francisco, Denver, and Washington, D.C.

Occupation	San Francisco		Washington D.C.	
-----	-----		-----	
Office Occupations:	Ratio of Earnings to Boston Earnings			
Secretaries	1.00	1.13	1.00	1.00
Word Processors	1.00	1.15	0.95	0.96
Key Entry Operators	1.00	1.18	1.01	0.92
Accounting Clerks	1.00	1.24	0.96	0.94
Payroll Clerks	1.00	1.21	1.00	1.00
File Clerks	1.00	1.10	0.99	1.17
Messengers	1.00	1.20	1.04	1.07
Order Clerks	1.00	1.30	1.20	0.98
Receptionists	1.00	1.02	0.74	0.84
Switchboard Operators	1.00	1.09	0.94	0.98
Professional and Technical:	Ratio of Earnings to Boston Earnings			
Computer Systems Analysts	1.00	1.06	0.99	1.00
Computer Programmers	1.00	1.23	1.05	1.01
Computer Operators	1.00	1.10	1.07	0.98
Drafters	1.00	1.15	0.90	0.78
Electronics Technicians	1.00	1.35	1.11	1.15
Maintenance, Toolroom, Powerplant, Material Movement, and Custodial:	Ratio of Earnings to Boston Earnings			
Maintenance Carpenters	1.00	1.38	1.07	1.00
Maintenance Electricians	1.00	1.51	1.05	0.82
Maintenance Painters	1.00	1.43	--	1.00
Maintenance Mechanics	1.00	1.49	1.10	1.16
Motor Vehicle Mechanics	1.00	1.21	0.91	0.94
Maintenance Workers (general)	1.00	0.94	1.00	2.05
Stationary Engineers	1.00	1.28	1.00	0.90
Truckdrivers	1.00	0.94	0.84	0.81
Shippers	1.00	1.57	0.87	0.94
Receivers	1.00	1.04	0.73	0.84
Warehousemen	1.00	1.22	0.95	0.75
Material Handling Laborers	1.00	1.26	1.00	0.74
Forklift Operators	1.00	1.00	0.97	0.98
Guards	1.00	1.04	0.87	1.07
Janitors, Porters, Cleaners	1.00	1.41	0.77	0.76

Source: See Table 8A.



Table 9. Average Annual Salaries in Selected  
Metropolitan Areas, 1987.  
in Descending Order of White Collar Salaries.

Metropolitan Area	Average Annual Salaries 1987	
	Manufacturing	Finance/Insurance /Real Estate
New York City	26,817	41,420
San Francisco	29,124	31,810
Chicago	27,204	30,229
Houston	30,795	28,870
BOSTON	28,176	28,589
Los Angeles	26,445	27,968
Atlanta	25,795	27,242
Denver	29,660	27,112
San Diego	26,954	26,475
Dallas/Fort Worth	27,450	26,237
Memphis	21,766	25,966
Philadelphia	26,885	25,870
Hartford	28,719	25,552
Minneapolis/St.Paul	29,823	25,449
Baltimore	27,369	25,381
Kansas City	26,766	25,210
Seattle	31,605	24,975
Washington, D.C.	27,921	24,888
West Palm Beach	31,346	24,792
Charlotte	21,177	24,673
Jacksonville	22,083	24,647
Phoenix	26,475	24,403
Richmond	29,356	24,285
Miami	17,827	24,278
Milwaukee	27,390	24,139
Detroit	33,935	24,066
Sacramento	25,513	23,867
Pittsburgh	29,399	23,475
St. Louis	29,459	23,366
Buffalo	26,814	23,209
Nashville	23,190	23,131
Indianapolis	28,757	22,940
Tampa	21,930	22,934
Cleveland	28,641	22,923
Rochester	31,071	22,886
San Antonio	20,298	22,771
Orlando	24,913	22,509
Birmingham	21,719	22,437
New Orleans	26,662	22,238
Cincinnati	29,857	22,122
Portland	25,433	22,044
Louisville	27,519	21,878
Columbus	27,509	21,454
Albany	25,219	21,284
Oklahoma City	28,008	21,142
Austin	25,884	20,585
Greensboro	21,293	20,203
Dartn	29,022	20,020
Norfolk	24,318	19,514
Salt Lake City	23,340	19,016



Table 10. Index of Employment Cost:  
Total Compensation.

Region	Index
	(June 1981=100) June 1990
Northeast	163.8
South	152.3
Midwest	147.7
West	151.3
All Private Industry Workers/1	153.6

/1 Excluding self-employed, unpaid family members,  
private households, and farm employees.

Note: Total compensation costs include wages, salaries,  
and employer costs for employee benefits.

Source: U.S. Department of Labor, Bureau of Labor Statistics,  
Employment Cost Index, July 1990.

Table 11. Rate of Total Compensation Change in  
the Employment Cost Index.

Region	Percent Changes for 3 months ended		Percent Changes for 12 months ended	
	June 89	June 90	June 89	June 90
Northeast	1.3	0.9	6.6	5.3
South	1.0	1.6	3.4	5.7
Midwest	1.1	1.3	4.0	4.8
West	1.2	1.2	3.8	4.5
All Private Industry Workers/1	1.2	1.3	4.5	5.2

/1 Excluding self-employed, unpaid family members,  
private households, and farm employees.

Note: Total compensation costs include wages, salaries,  
and employer costs for employee benefits.

Source: U.S. Department of Labor, Bureau of Labor Statistics,  
Employment Cost Index, July 1990.



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